ROAD SAFETY SITUATION IN DHAKA

An analysis of crash data from 2019 to 2020

SEPTEMBER 2024

EXECUTIVE SUMMARY

This short report is an analysis of police reported road crash data in Dhaka from January 2019 to September 2020. The report focuses on fatal crashes and fatalities, presenting findings on the road safety situation, vulnerable road users, and high-risk locations.

From January 2019 to September 2020, 490 crashes were reported. 335 of those were fatal and resulted in 351 fatalities. It is important to note that there is evidence of underreporting of police reported crash data.

Pedestrians were the most vulnerable road users, accounting for 66% of all fatalities. Motorcyclists also faced significant risk, with one motorcyclist dying for every six road crash fatalities.

Men made up 79% of all deaths and people aged 40-49 years old experienced the highest death rates.

Buses were involved in most fatal crashes. Two out of every three pedestrian deaths and three in five motorcyclist deaths were caused by bus-related crashes.

The report identified six high-risk locations within the Dhaka North City Corporation (DNCC). Maps of pedestrian and motorcyclist crashes were also produced.

The findings emphasize the urgency and necessity for evidence-based, targeted, and system-wide road safety interventions in Dhaka especially for the most vulnerable groups such as pedestrians.

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INTRODUCTION

In 2021, road traffic crashes claimed 1.2 million lives globally. These crashes were the leading cause of death for young people aged 5 to 29 years [1]. Low and middle income countries bear the brunt of these crash deaths with individuals in lower-income nations still facing the highest risk of death relative to their population [1].

In Dhaka, the capital of Bangladesh, majority of the people depends on walking (45%) and motorcycle (10%) as their primary modes of transport [2]. This underscores that a significant portion of road users are vulnerable and at heightened risk of crash-related injuries and fatalities. In this context, the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) has been collaborating with the Dhaka North City Corporation (DNCC) in efforts to reduce death on Dhaka roads. Central to this effort is understanding the road safety situation in Dhaka through the analysis and use of data. This report aims to identify road safety issues in Dhaka, understand vulnerable groups, determine high-risk locations, and enable evidence-based action for road safety.

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1. Global status report on road safety, World Health Organization, 2023

2. Rahman, Faysal Ibna. "Analysing the factor influencing travel pattern and mode choice based on household interview survey data: a case study of Dhaka city, Bangladesh." Silesian University of Technology 109 (2020).

METHODOLOGY

The data for this report were obtained from the Accident Research Institute (ARI) of the Bangladesh University of Engineering and Technology (BUET). These data were based on First Information Reports (FIRs) and Accident Report Forms (ARFs) filled by the Dhaka Metropolitan Police (DMP). The data were collected from both the Dhaka North and South.

Whenever a crash occurs, investigating officers (IOs) from the relevant police stations under DMP records the general details of a crash in an FIR. The FIR is then used to complete an ARF as well as forms in the Crime Data Management System (CDMS) and the online version of the MAAP (Microcomputer Accident Analysis Package) system. The hard copies of both the FIRs and ARFs are stored at individual police stations and shared with the Police Headquarters in Dhaka.

The ARI collected the FIRs and ARFs from both the police stations (thana) and the headquarters. They then digitized, coded, and compiled the data. The Dhaka North City Corporation (DNCC) formally requested ARI for the datasets.

Upon receipt of the data, the team assigned geo-referencing to the individual crash records, corrected errors, filled-in missing details, and prepared the dataset for analysis. Spatial analysis was performed using the QGIS 3.18.3 software.

It is important to note that police reported crash data in Bangladesh (FIRs, ARFs, and digital records from the crash database system) are prone to underreporting. This is evidenced by estimates from international organizations such as the World Health Organization (WHO) and local research by the Accident Research Institute (ARI) and Center for Injury Prevention and Research Bangladesh (CIPRB).

RESULTS

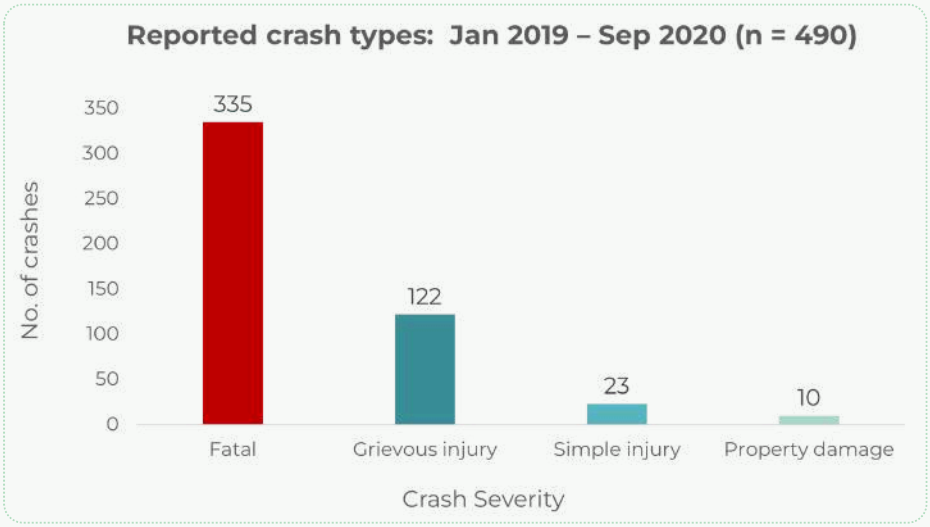
REPORTED CRASHES

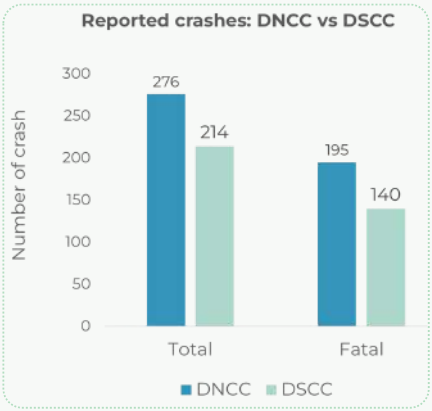
A total of 490 crashes were recorded during the analysis period (January 2019 to September 2020).

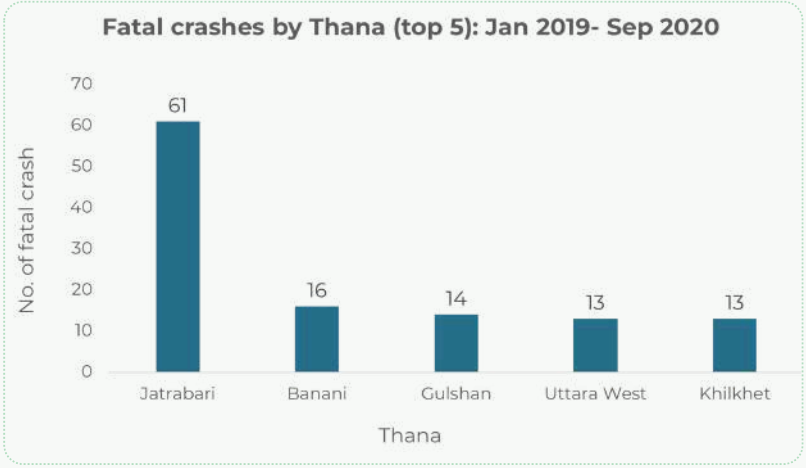
218 fatal crashes occurred in the whole of 2019 while 117 fatal crashes were recorded from January to September 2020.

68

% OF REPORTED CRASHES WERE FATAL DENOTING UNDERREPORTING OF NON-FATAL CRASHES







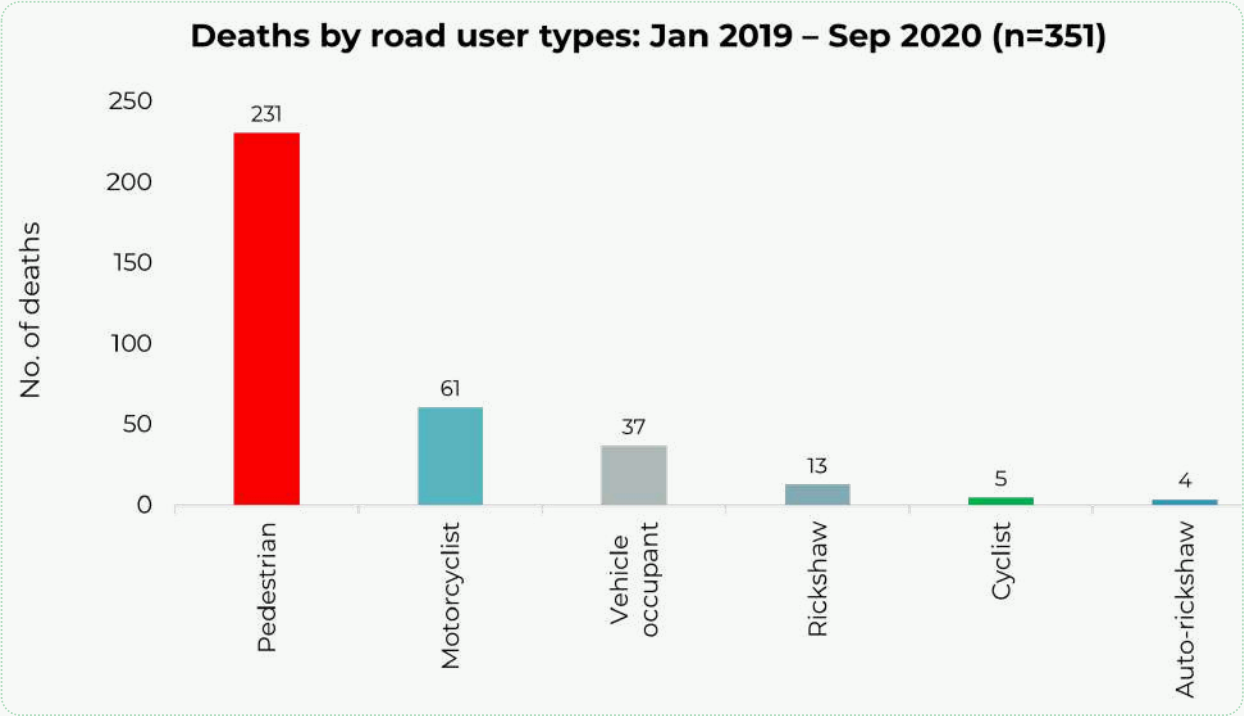
58

%FATAL CRASHES WERE REPORTED FROM DNCC

1 IN 6 FATAL CRASHES WERE REPORTED FROM **JATRABARI** THANA

CRASH FATALITIES

Pedestrians were the most vulnerable road user on Dhaka streets



351

PEOPLE DIED IN
335 FATAL CRASHES

66

% OF ALL ROAD DEATHS
ARE PEDESTRIANS

TWO OUT OF THREE FATALITIES IN
CRASHES INVOLVED **PEDESTRIANS.**

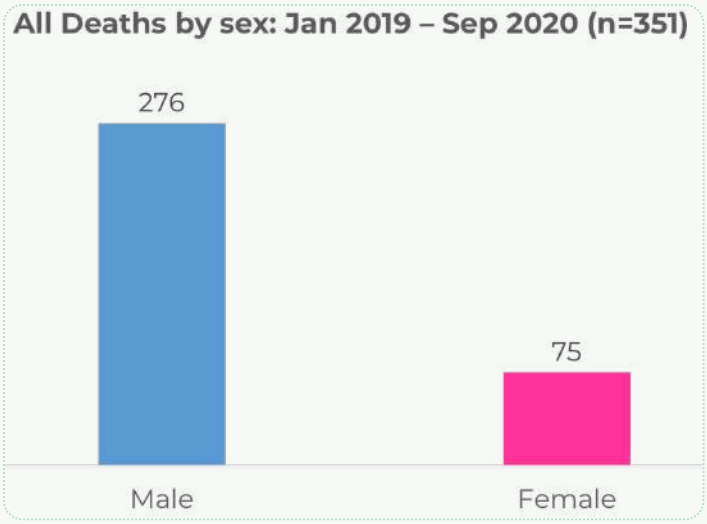
MOTORCYCLISTS ACCOUNTED FOR
ONE OUT OF EVERY SIX FATALITIES.

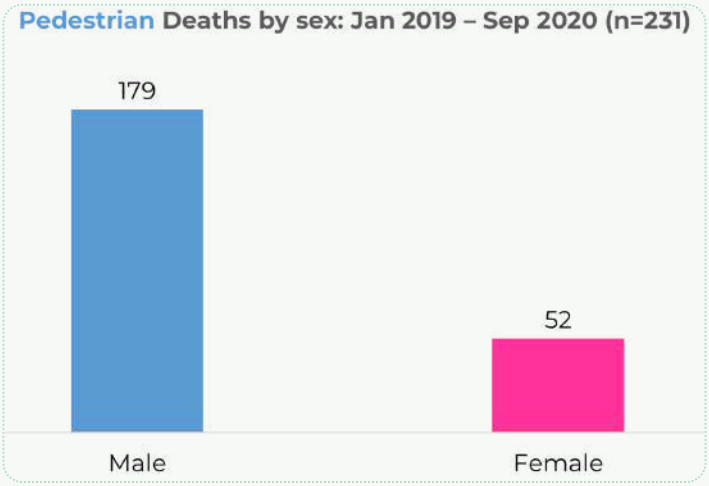
DEATHS

79 % OF ALL DEATHS WERE MALES

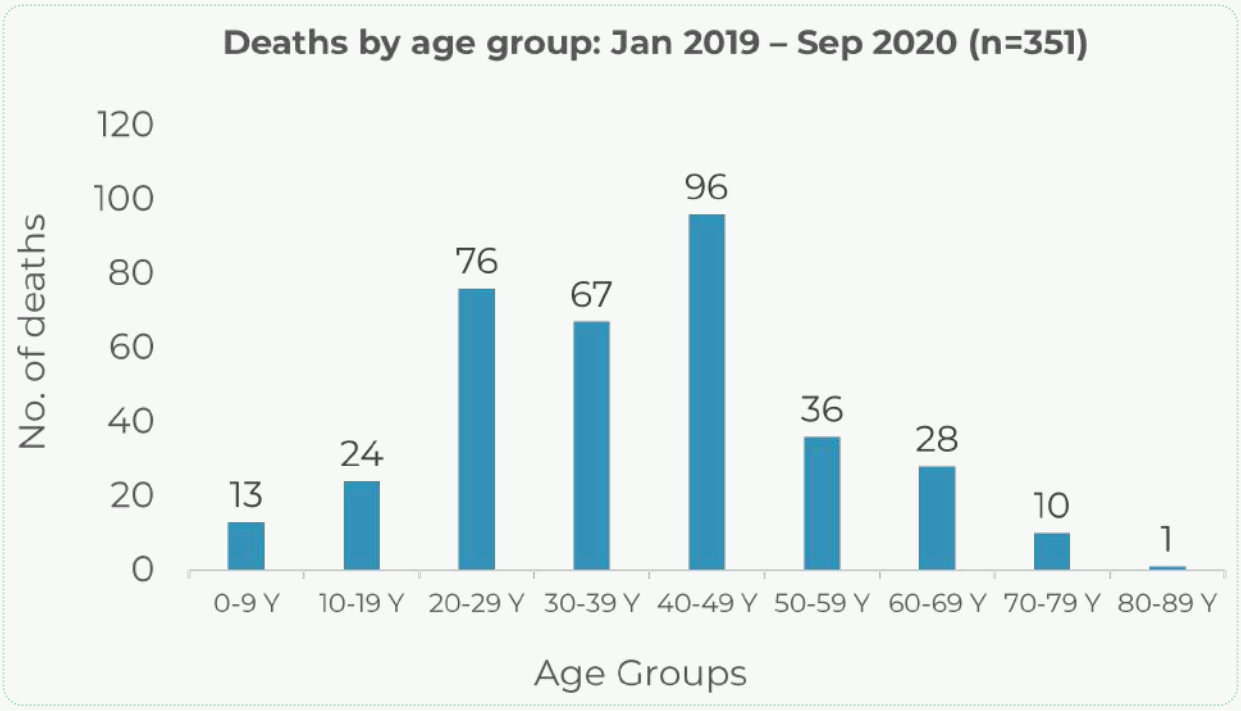
FOUR OUT OF FIVE FATALITIES IN CRASHES INVOLVED MALES

ONE IN EVERY FOUR PEDESTRIAN FATALITIES INVOLVED FEMALES



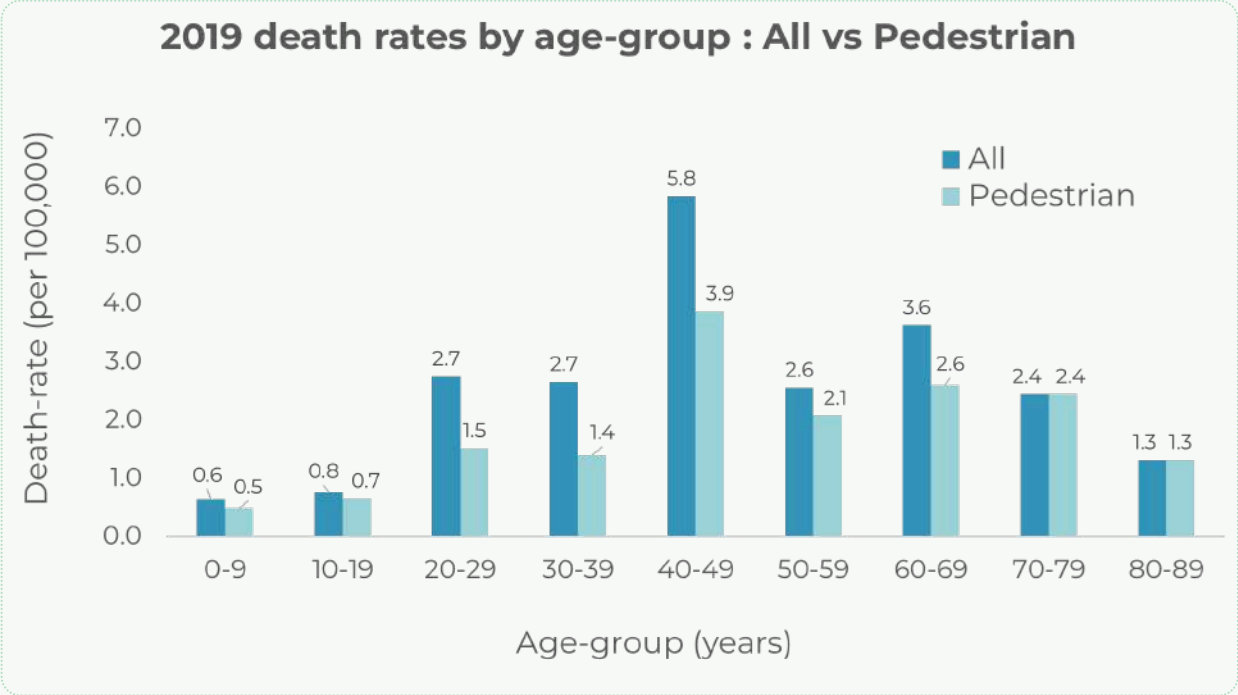


People aged from 40 to 49 years old had the most fatalities



DEATH RATES BY AGE

Reported road crash death rate for Dhaka in 2019 was 2.3 per 100,000 population



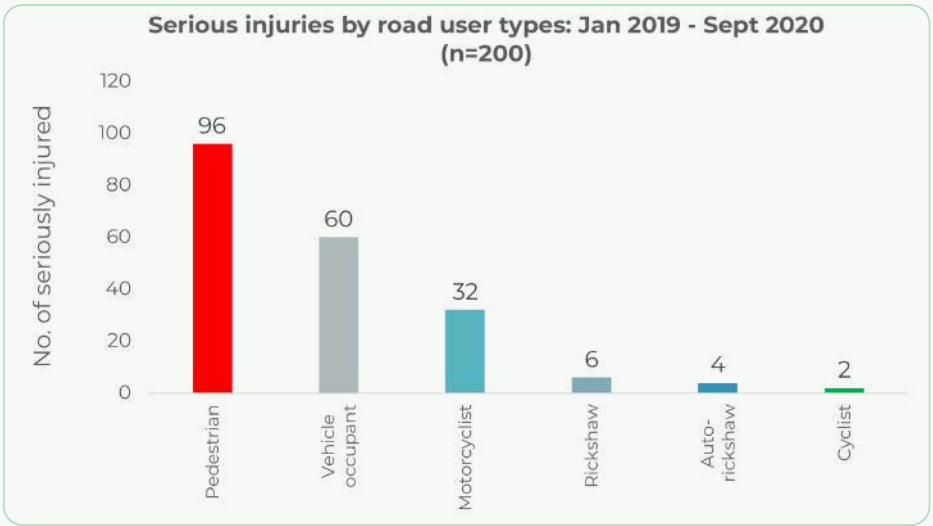
PEOPLE AGED 40-49 YEARS HAD THE HIGHEST DEATH RATE OF **5.8**

FOR BOTH OVERALL AND PEDESTRIAN FATALITIES, PEOPLE OVER 40 YEARS OF AGE HAVE HIGHER DEATH RATES COMPARED TO THOSE UNDER 40

SERIOUS INJURIES

64

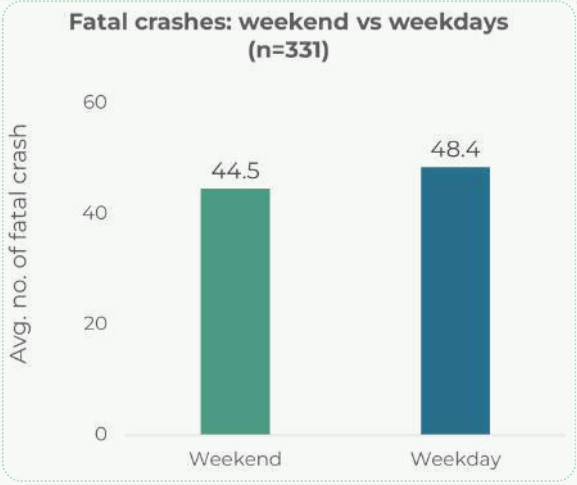
% OF SERIOUS INJURIES WERE PEDESTRIANS & MOTORCYCLISTS



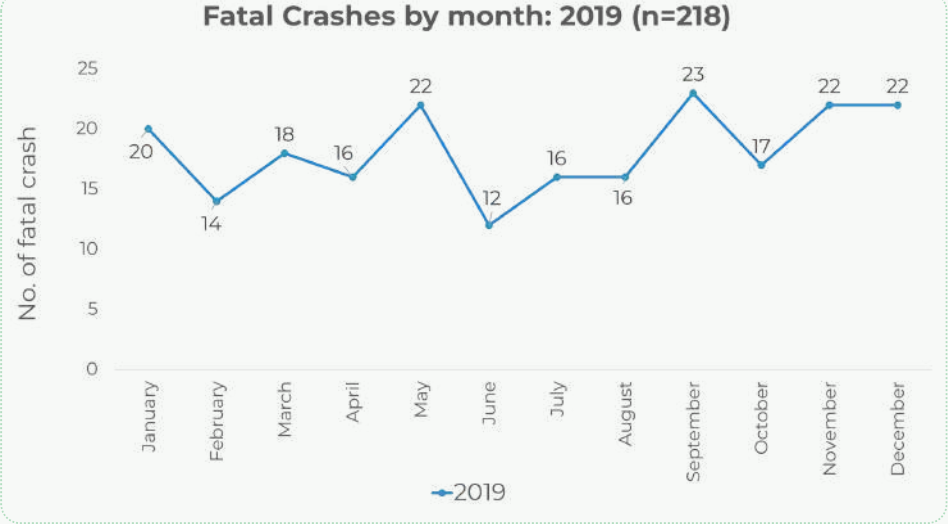
TIME-OF-DAY, DAY-OF-WEEK

Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	*Total*
00:00-00:59	3	1	1	5	1	3	2	16
01:00-01:59	0	1	3	1	1	2	0	8
02:00-02:59	2	1	1	3	1	1	2	11
03:00-03:59	0	3	2	0	1	2	1	9
04:00-04:59	0	3	1	2	3	1	0	10
05:00-05:59	1	2	3	1	3	1	1	12
06:00-06:59	2	0	3	1	1	4	3	14
07:00-07:59	3	3	5	1	2	1	1	16
08:00-08:59	2	4	4	6	0	2	1	19
09:00-09:59	2	2	3	2	3	1	1	14
10:00-10:59	1	1	1	1	4	7	2	17
11:00-11:59	4	2	6	2	6	4	1	**25**
12:00-12:59	4	4	3	4	4	3	1	23
13:00-13:59	1	0	2	0	1	2	4	10
14:00-14:59	2	1	1	2	1	2	0	9
15:00-15:59	1	1	0	0	2	2	0	6
16:00-16:59	0	1	2	3	2	3	1	12
17:00-17:59	2	2	3	4	2	1	0	14
18:00-18:59	3	4	4	2	0	3	1	17
19:00-19:59	6	1	2	4	3	2	3	21
20:00-20:59	0	1	3	2	1	0	1	8
21:00-21:59	3	1	0	3	2	1	3	13
22:00-22:59	0	1	1	4	4	4	6	20
23:00-23:59	1	1	2	1	0	2	0	7
Total	43	41	**56**	54	48	54	35	**331**

ON AVERAGE, MORE FATAL CRASHES WERE REPORTED ON WEEKDAYS THAN ON WEEKENDS



THERE WAS NO CLEAR SEASONAL PATTERN IN FATAL CRASHES



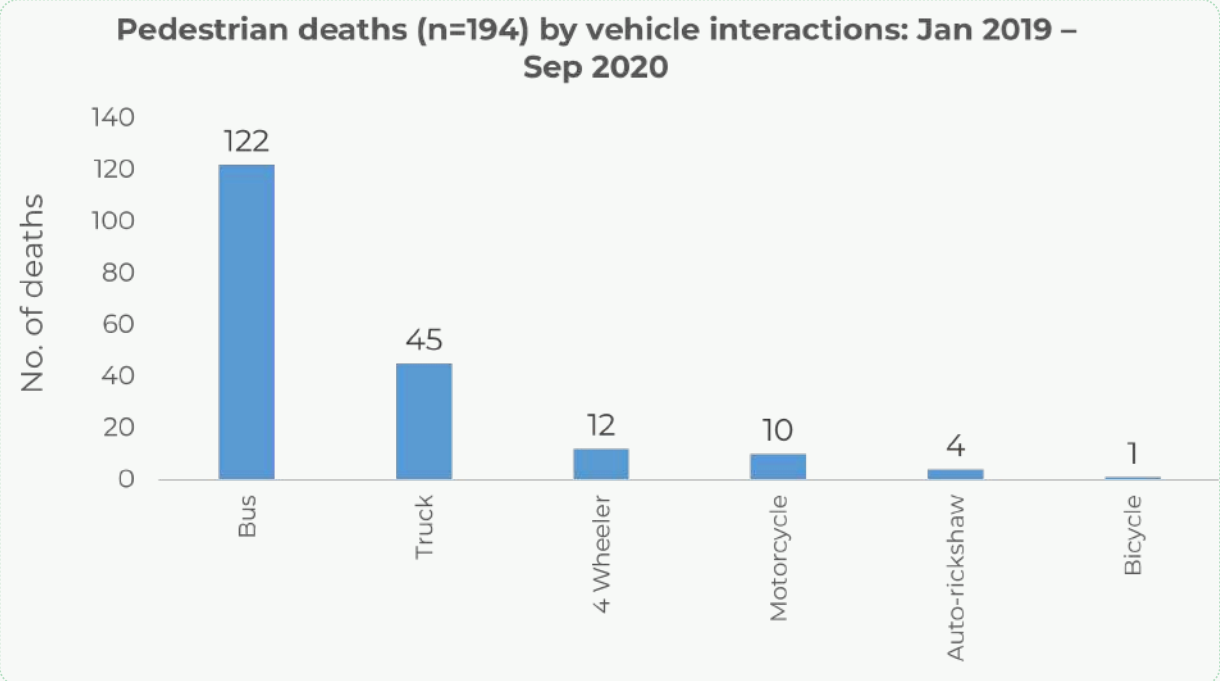
VEHICLE INTERACTIONS

BUSES WERE INVOLVED IN MOST CRASHES

Most Prevalent Vehicle Interactions in Jan 2019 – Sep 2020		
1	Bus – Pedestrian	131
2	Truck - Pedestrian	60
3	Bus - Motorcycle	31
4	Motorcycle – Pedestrian	24
5	Sedan - Pedestrian	19

PEDESTRIAN DEATHS BY VEHICLE INTERACTIONS

MOST PEDESTRIAN DEATHS WERE CAUSED BY BUS



63 % OF PEDESTRIAN FATALITIES INVOLVED **BUSES***

23 % OF PEDESTRIAN FATALITIES INVOLVED **TRUCKS****

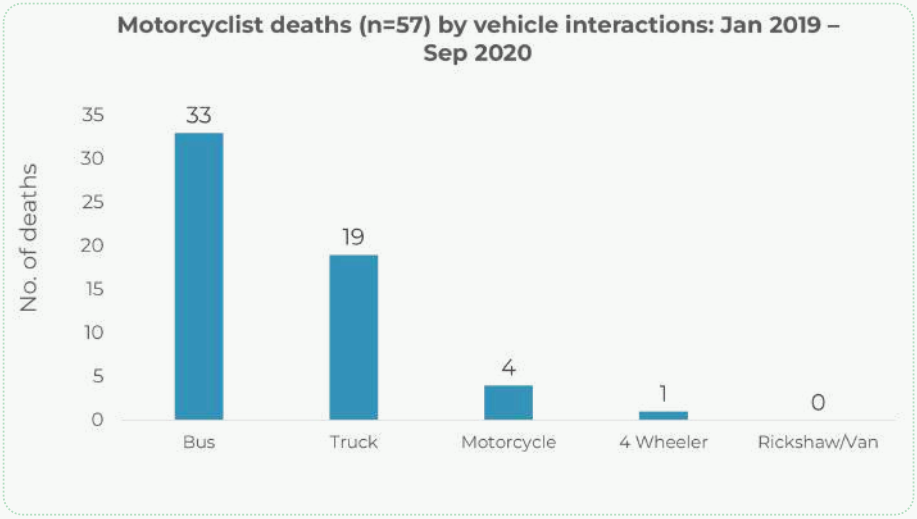
**Buses include Bus, Minibus & Microbus*
***Trucks include Heavy, Small, Pick-up trucks and Tankers*
4 Wheelers include Sedan & SUV

MOTORCYCLIST DEATHS BY VEHICLE INTERACTION

BUSES WERE INVOLVED IN MOST MOTORCYCLIST DEATHS

3 IN 5 MOTORCYCLISTS DIED FROM BUS CRASHES

1 IN 3 MOTORCYCLISTS DIED FROM CRASHES WITH TRUCKS



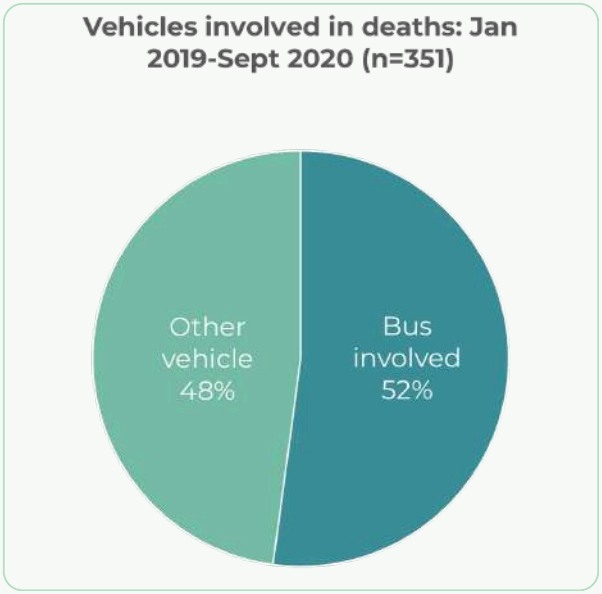
BUS-RELATED FATALITIES

BUSES CAUSED MOST REPORTED CRASH DEATHS ON DHAKA ROADS

183 OF 351 PEOPLE WERE KILLED IN BUS CRASHES

2 OF 3 PEDESTRIANS WERE KILLED IN BUS CRASHES

3 IN 5 MOTORCYCLISTS WERE KILLED IN BUS CRASHES



HIGH-RISK LOCATIONS

6 CRASH PRONE LOCATIONS ARE WITHIN DNCC

#	Location Description	250m radius cluster coordinates	# Fatality	Location
1	Pragati Saroni, next to CocaCola Bus stop, Baridhara	23.804945, 90.422043	10	DNCC
2	Dhaka-Chattogram Hwy, Matuail Bus stop, in front of ICMH	23.694875, 90.466625	8	DSCC
3	Dhaka-Chattogram Hwy, next to Rayerbagh Bus stop	23.698919, 90.458172	7	DSCC
4	Gulistan Bus Stop, South-west corner of National Hockey Stadium, Bangabandhu Avenue, Gulistan	23.724982, 90.412072	6	DSCC
5	Mirpur Bedibandh Road, in front of Energypac Service Center	23.817436, 90.341692	5	DNCC
6	Dhaka-Mymensing Hwy, south of Banani Kamal Ataturk intersection, Banani	23.794118, 90.400916	5	DNCC
7	Dhaka-Mymensing Hwy, south of Setu Bhaban, Mohakhali	23.782975, 90.399203	5	DNCC
8	Bir Uttam Rafiqul Islam Avenue, next to Badda Alatunnesa School Flyover, Middle Badda	23.77779, 90.42568	5	DNCC
9	DIT Road, below Hatirjheel loop, next to BTV Centre, Rampura	23.766180, 90.422190	5	DNCC
10	Postogola Bridge, next to Postogola Bus stop, Postogola	23.691491, 90.432018	5	DSCC

HIGH-RISK LOCATIONS: PEDESTRIANS

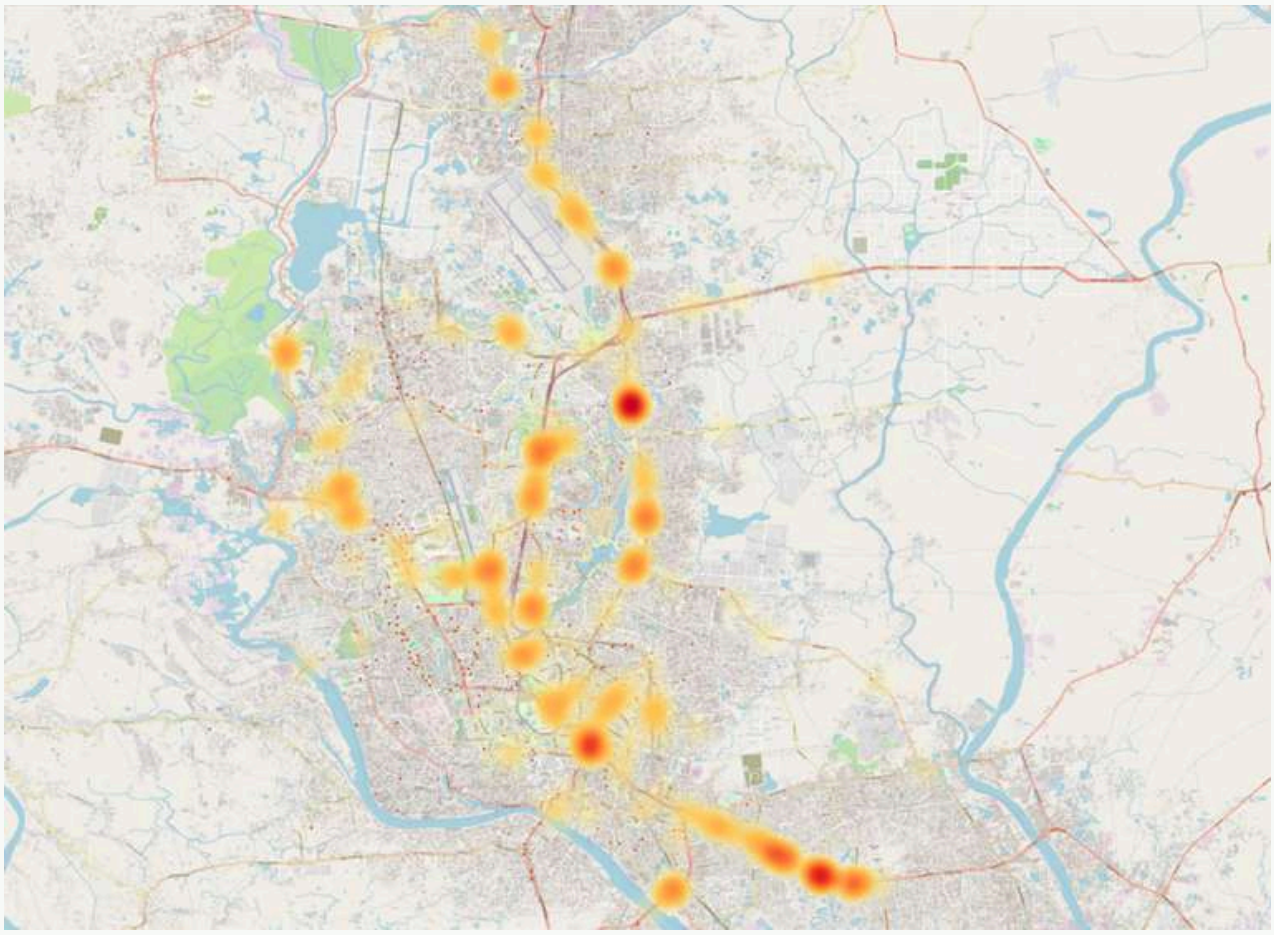
#	Location Description	250m radius cluster coordinates	# Fatality	Location
1	Pragati Saroni, near CocaCola Bus stop, Baridhara	23.804945, 90.422043	7	DNCC
2	Dhaka-Chattogram Hwy, near Rayerbagh Bus stop	23.698919, 90.458172	7	DSCC
3	Dhaka-Mymensing Hwy, near Banani Kamal Ataturk intersection, Banani	23.794118, 90.400916	5	DNCC
4	Dhaka-Mymensing Hwy, south of Setu Bhaban, Mohakhali	23.7829751, 90.3992030	5	DNCC
5	Gulistan Bus Stop, South-west corner of National Hockey Stadium, Bangabandhu Avenue, Gulistan	23.724982, 90.412072	5	DSCC

HIGH-RISK CORRIDORS

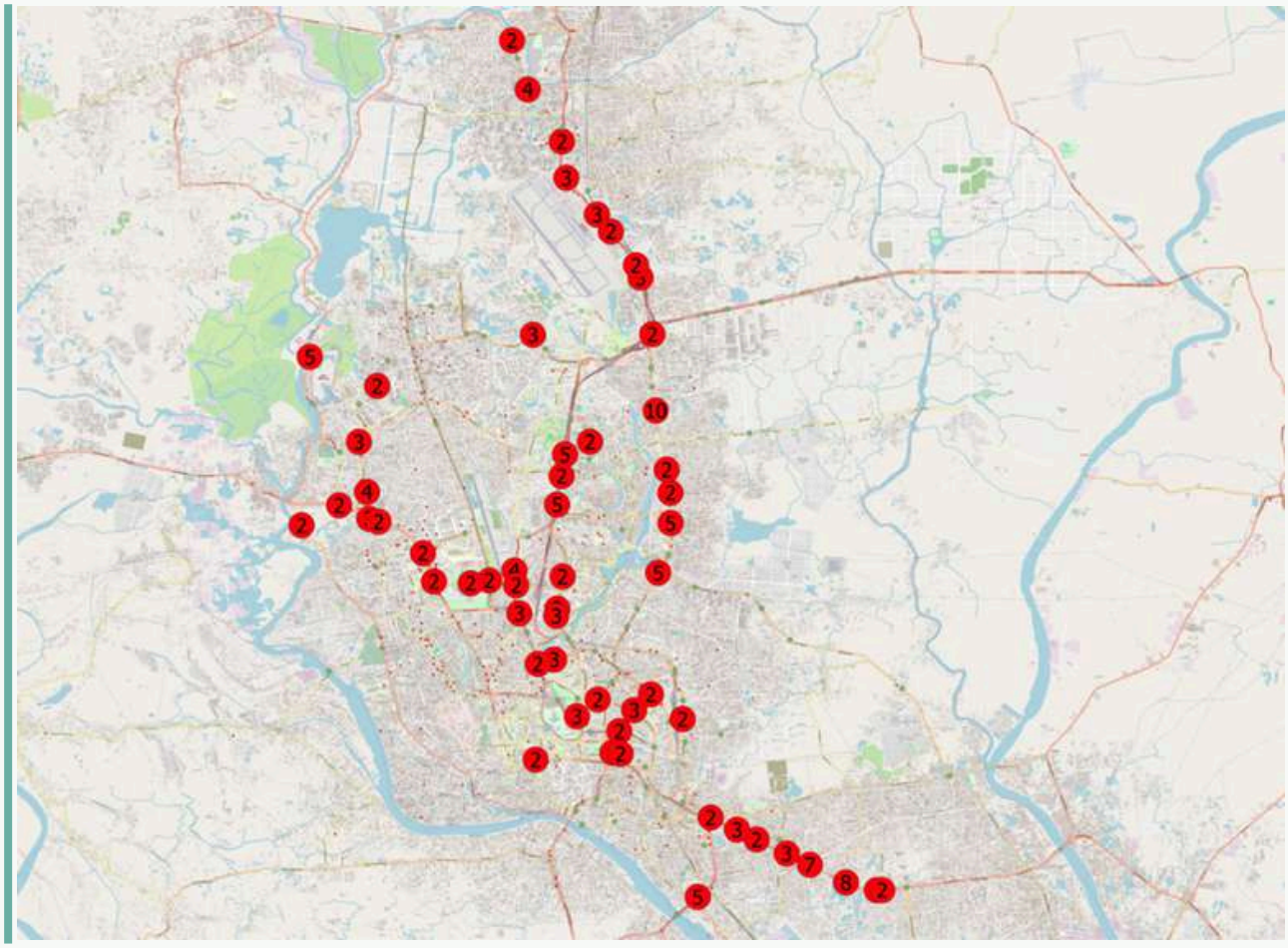
11 OF 14 DEADLY CORRIDORS ARE LOCATED WITHIN DNCC

	Corridor name	Length (m)	P1 Coordinates	P2 Coordinates	# Fatality	Fatality/Km
1	DIT Avenue (Gulistan)	450	23.724848, 90.410672	23.725525, 90.415043	8	17.8
2	Dhaka-Chattogram Hwy (Rayerbagh-Signboard)	2597	23.693785, 90.480761	23.699338, 90.457021	22	8.5
3	Progati Saroni (Baridhara)	1525	23.801226, 90.422910	23.811792, 90.421227	12	7.9
4	Shahid Tazuddin Ahmed Saroni (Tejgaon)	1280	23.767339, 90.400741	23.755479, 90.399427	7	5.5
5	Dhaka-Mymensing Hwy (Mohakhali)	2502	23.780543, 90.398795	23.802726, 90.402310	13	5.2
6	Mirpur Road (Darus Salam)	1280	23.782767, 90.347202	3.778640, 90.358680,	6	4.7
7	Dhaka-Ashulia Hwy (Uttara 10 - Kamarpara)	1513	23.891950, 90.388222	23.879700, 90.392239	7	4.6
8	Darus Salam Road (Mirpur 1)	1520	23.798118, 90.352772	23.784684, 90.353828	7	4.6
9	Dhaka-Mymensing Hwy (Airport-Nikunja 2)	2255	23.851487, 90.407507	23.834785, 90.419505	10	4.4
10	Kazi Nazrul Islam Avenue (Karwan Bazar - PM Office)	2785	23.745732, 90.394530	23.768715, 90.389316	12	4.3
11	Dhaka-Mymensing Hwy (Uttara)	1544	23.871043, 90.400496	23.857667, 90.402133	6	3.9
12	Mirpur Beribandh Road (Mirpur Zoo)	1560	23.818587, 90.341829	23.8059399, 0.342191	6	3.8
13	Bir Uttam Rafiqul Islam Avenue (Badda)	2716	23.793877, 90.424048	23.770807, 90.425126	10	3.7
14	Dhaka-Chattogram Hwy (Jatrabari-Shonir Akhra)	2330	23.710123, 90.433628	23.700690, 90.454023	7	3.0

FATALITY HEAT MAP

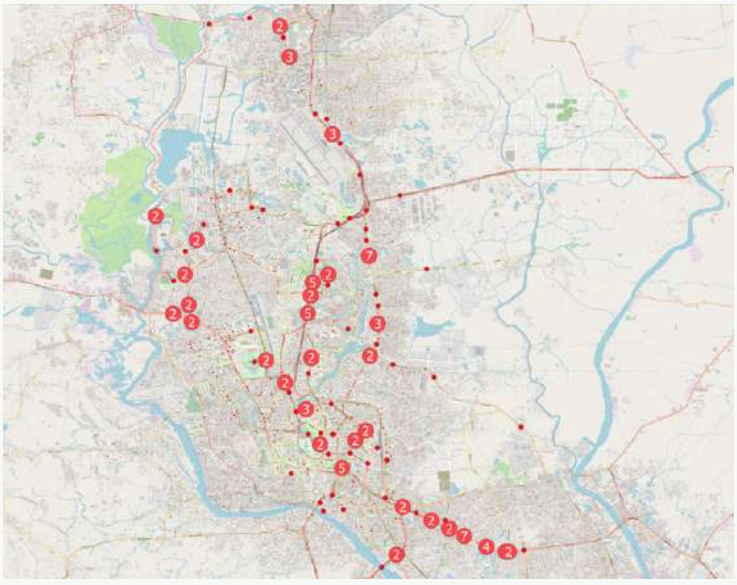


FATALITY CLUSTER MAP

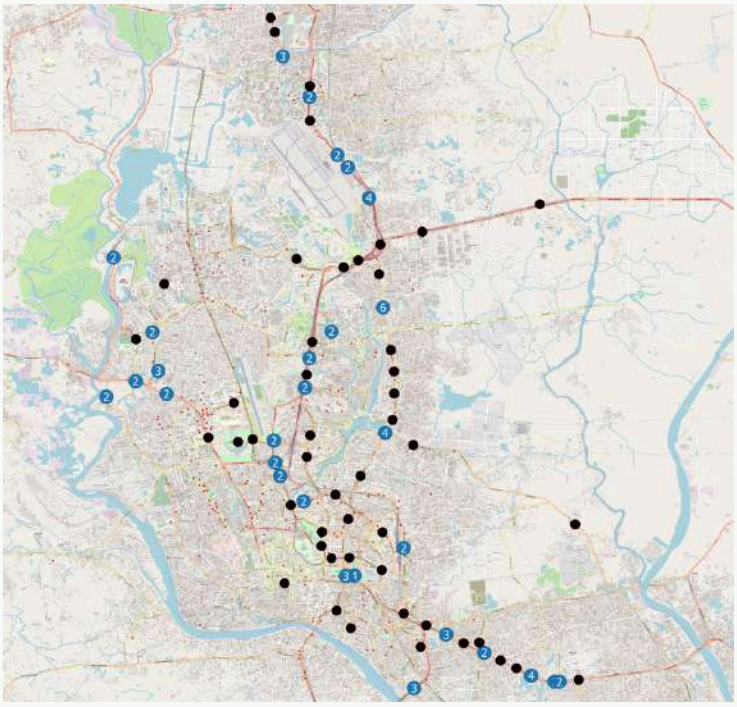


FATALITY MAPS

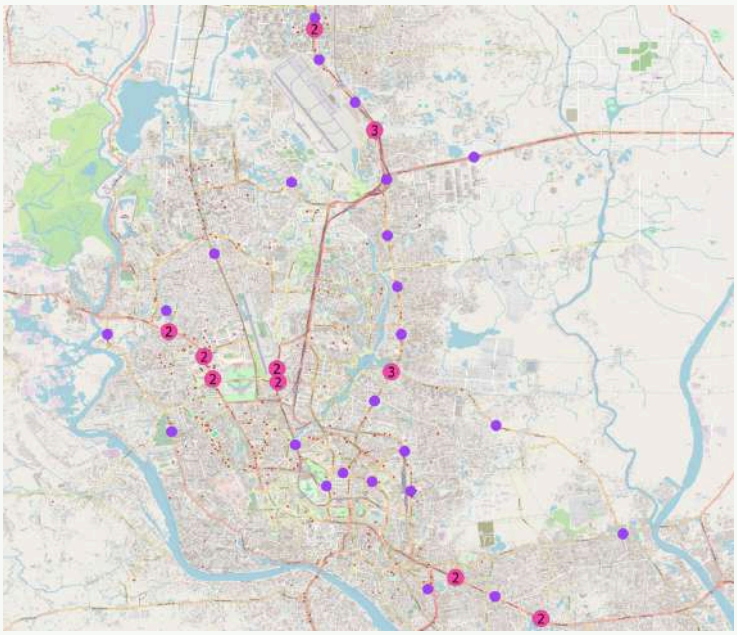
PEDESTRIAN FATALITIES CLUSTER MAP



CLUSTER MAP OF FATALITIES INVOLVING BUS CRASHES



MOTORCYCLIST FATALITIES CLUSTER MAP



SUMMARY

Fatalities:

- **490 crashes** were reported between January 2019 and September 2020.
- **351 deaths** occurred from 335 reported fatal crashes during this period.
- ***Pedestrians***: Two out of three fatalities involved pedestrians, making them the most vulnerable group.
- ***Motorcyclists***: One in six fatalities involved motorcyclists, ranking them as the second most vulnerable group.
- ***Gender***: Four out of five fatalities were male (79% of all deaths).
- ***Age***: Individuals aged 40-49 had the highest death rate. Overall, 68% of crash victims were aged between 20 and 50.

Crash Timing:

- More fatal crashes occurred on weekdays compared to weekends.

Vehicle Involvement:

- ***Buses:*** Buses were involved in the majority of pedestrian and motorcyclist deaths, making them the deadliest vehicle on Dhaka's roads.
  - 63% of pedestrian deaths were caused by buses.
  - Three out of five motorcyclist deaths were due to bus crashes.
- ***Trucks:*** One in three motorcyclists was killed in crashes involving trucks.

High-risk locations:

- Six high-risk locations and eleven high-risk corridors were identified within Dhaka North City Corporation (DNCC).
- DNCC roads had a higher number of recorded crash fataltiies for both pedestrians and motorcyclists compared to Dhaka South City Corporation (DSCC).
- 70% high-risk locations identified in this analysis were adjacent to **bus stops.**

RECOMMENDATIONS

1

Prioritize High-risk Locations

The next step is to conduct further investigation on high-risk locations to collect data on road infrastructure, road user behavior, traffic environment, among others. Given the constraints in resources, prioritizing high-risk locations in terms of interventions in Dhaka will have an immediate effect in reducing fatalities. Corridor and area-wide interventions are also recommended.

2

Improve Pedestrian Safety and Accessibility

Given that majority of fatalities involve pedestrians, interventions should focus on increasing pedestrian safety and accessibility. This includes the construction of pedestrian infrastructure such as adequate and connected sidewalks, proper and complete crossings, and traffic calming. Related to pedestrian safety is speed reduction measures as most high-speed roads in Dhaka traverse pedestrian-heavy areas.

3

Ensure Safety of Buses

An overwhelming share of fatalities involved buses. This warrants the development of a safe public transportation and bus system. This includes building adequate and accessible bus infrastructure such as permanent bus stops. This will also involve reforms in the management and operations of public transport such as setting safety performance indicators for bus companies and operators.

4

Data & Systems Strengthening

Access to accurate and reliable data in Dhaka is a huge issue that prevents evidence-based decision-making in road safety. A critical next step is to digitize, organize, and analyze the most recent three years of historical data. In the medium-term, it is important to identify the national database system in Bangladesh and support its scale-up through institutionalizing data collection processes, data sharing mechanisms, and data analysis and use activities.

5

Stakeholders coordination

Institutional arrangements aimed at streamlining coordination among relevant stakeholders e.g. BRTA, DMP, DGHS, RHD, RAJUK, DNCC, DSCC, ARI, civil society and non-profit organizations will be highly conducive for planning and implementing evidence based interventions.

ACKNOWLEDGEMENTS

Dhaka North City Corporation (**DNCC**) Traffic Engineering Circle extends its sincere appreciation to the Dhaka Metropolitan Police (**DMP**) and the Accident Research Institute (**ARI**), BUET, for their unwavering support, which was crucial in the completion of this report.